

GENCORP
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Fax: 916-351-8664Suzanne L. Phinney, D. Env.
Vice President,
Environmental, Safety, and Health

April 30, 1998

Mr. David Spath, Ph.D., Chief
Division of Drinking Water and Environmental Management
State of California, Department of Health Services
P. O. Box 942732
Sacramento CA 94234-7320

Re: Perchlorate Toxicity

Dear Gentlemen:

Aerojet has recently become aware that DHS may be contracting with an outside entity regarding additional perchlorate exposure assessments in the Rancho Cordova area.

We understand the exposure assessment to be an attempt to project what concentrations of a particular chemical may have been at the tap of a particular user's water supply over time. This would necessarily involve an attempt (1) to project (backwards in time) the extent to which the person was exposed at the location (amount of water consumed at that location from the public water supply); (2) to project (backwards in time) the concentration of a chemical in the water supply which would require (a) an attempt to project (backwards in time) the concentration of a chemical in a well; (b) an attempt to project (backwards in time) the extent to which the concentration actually reached the user at a particular location.

Aerojet has previously registered its concerns DHS that such an exposure assessment is not warranted based upon DHS's preliminary assessment and that it raised serious methodological problems. A copy of Aerojet's January 8, 1998, letter to Ms. Riggan is attached for your convenience.

Aerojet recommends that DHS not undertake such an exposure assessment. However, if such an assessment is to be conducted, it should be deferred until there has been outside peer review of the methodology and that the outside reviewers confirm the appropriateness of such an evaluation and approve the methodology. Aerojet also recommends that if an exposure assessment is undertaken, the results be presented in a draft and preliminary manner until there has been adequate peer review of the findings. This action would then be consistent with the overall approach taken by the various regulatory agencies and DoD to require thorough peer

review of all methodologies/protocols and subsequent results from perchlorate studies currently underway. The backbone of government/business perchlorate efforts to date has been a strong science approach and this must be maintained with all related studies.

Aerojet would like to meet with you on this important subject as soon as possible given the seemingly imminent contracting schedule. My office will be contacting you shortly.

Thank you for your consideration of this important matter.

Sincerely,

A handwritten signature in cursive script, appearing to read "Eugene Plummer". The signature is written in dark ink and is positioned below the word "Sincerely,".

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January 8, 1998

Ms. Jane Riggan
Public Health Social Work Consultant
Environmental Health Investigations Branch
California Department of Health Services
2151 Berkeley Way
Berkeley, California 94704-1011

Re: Comments on Draft Health Consultation—Preliminary Health Reviews
in Rancho Cordova, Sacramento County, California

Dear Ms. Riggan:

Aerojet-General Corporation received the above-referenced draft dated October 16, 1997 (the "October 16 draft") under cover of a memorandum dated December 2, 1997. We appreciate this opportunity to provide comments. From what we understand, the results indicate that the perchlorate at the levels found in public water supply wells has not created an observed health impact.

We have not attempted to critically review the various preliminary health outcome evaluations described in the draft memorandum, including methodologies used and outcomes described. Several of our comments on the October 16 draft are the same as presented in our letter of October 13, 1997, and we would appreciate your consideration of them. Two specific comments, for example, are as follows. The October 16, 1997 draft states a belief that perchlorate first contaminated wells in the Cordova system "as early as 1987," which is an assumption which we think should not be stated as such. We are also concerned about the statement at page 3 that water "may have posed a health hazard" and the absence of any language that notes that CDHS believes that health impact was unlikely. (See Aerojet's October 13 letter at pages 8 and 9.)

We have the following comment on the "Actions Planned" section, which suggests the possibility of exposure modeling in regard to a possible study of neonatal thyroid levels. The CDHS draft demonstrates that neonatal hypothyroidism was not increased in incidence in the areas of interest. In the "exposed" area, CDHS found only four cases of neonatal hypothyroidism reported in twelve years, so there is little likelihood of doing any meaningful epidemiologic study of hypothyroidism, given so few cases available. Undertaking such a study to further evaluate neonatal thyroid

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hormone levels with mothers divided into groups according to maternal perchlorate intake as modeled by ATSDR raises many methodological concerns, including:

1. There is uncertainty as to the accuracy and validity of the exposure modeling as a means to distinguish "exposed" from "unexposed" groups, and no way to measure the validity. We believe that an exposure assessment would be very speculative. We refer you generally to Aerojet's comments in our letter of October 13, relative to exposure assumptions. Your October 16 draft consultation also notes difficulties with attempting such an evaluation. Even if one could accurately model past concentrations in particular wells, there must be adequate information on consumption and a host of other factors to make the evaluation potentially useful.
2. It is difficult to interpret differences in mean thyroid hormone levels in populations if almost all of the values are within normal limits and there is no excess number of persons with clinically significant abnormal values.
3. The consultation document points out the importance of other factors, such as deficiencies of Thyrotropin Releasing Factor and Thyroid Stimulating Hormone, aplasia or hypoplasia of the thyroid gland, and iodine deficiency. The CDHS has not indicated how any potential study will deal with these other factors.
4. Finally, the utility and interpretation that may be given to population differences in thyroid hormone levels when such levels are still within normal bounds is questionable.

Based on the studies' preliminary results wherein no significant health effects were found in the potentially affected population, and the uncertainties of how other factors would also impact the observable health impacts, it appears reasonable to conclude that modeling of potential perchlorate uptake is not warranted. However, if CDHS intends to undertake the exposure evaluation described, it is our understanding Aerojet's input will be included in the evaluation of methods to be used and developing the assumptions and approach to be taken.

Very truly yours,



Suzanne L. Phinney
Vice President,
Environmental, Safety, and Health